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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/657,413	09/08/2003	Charles T. Bye	P03.0225 (H0004559,SBE 16	9020
128	7590	12/07/2005	EXAMINER	
HONEYWELL INTERNATIONAL INC. 101 COLUMBIA ROAD P O BOX 2245 MORRISTOWN, NJ 07962-2245			LOUIS JACQUES, JACQUES H	
			ART UNIT	PAPER NUMBER
			3661	

DATE MAILED: 12/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/657,413

Applicant(s)

BYE ET AL

Examiner

Jacques H. Louis-Jacques

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 September 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 8, 12-14 and 20-31 is/are rejected.
- 7) ☒ Claim(s) 6, 7, 9-11, 15-19, 32 and 33 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-2, 5, 8, and 20-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art (AAPA) in view of Perho [US 2004/0093435].

As described in the Background of the Invention (AAPA), a navigation system frequently relies on an inertial measurement unit (IMU) and a global positioning system (GPS) that interface with a navigation computer to provide navigation control and/or guidance of a craft such as an airplane, missile submarine. In operation, the navigation system may assume control of the GPS tracking loops by use of a Kalman filter, which commonly referred to as Deep Integration. Because of the precise nature of how the tracking loops are driven, the navigation system as described above requires precise alignment of the clock signals incorporated within the global positioning system, the inertial measurement unit, and the navigation computer. As described in the background of the invention, Applicant also recognized that the prior art discloses adjusting time alignment of inertial data from the inertial measurement unit, GPS data from the GPS receiver, and tracking loop commands provided by the navigation computer. The prior clock system discloses the time alignment of inertial data and the tracking of loop commands. However, the

prior art (AAPA) is not described as particularly teaching a clock controller, wherein the clock controller enables only the navigation computer to be clocked by the clock of the navigation computer at times, and wherein the clock controller enables both the navigation computer and the inertial measurement unit to be clocked by the clock of the navigation computer at other times.

Purho, on the other hand, discloses a method for synchronizing a first clock (e.g., IMU clock) to a second clock (e.g., navigation computer clock), processing unit (e.g., clock controller) and synchronization system, wherein a first clock C is synchronized to a reference clock A, the first clock C being connected to the reference clock A via a processing unit B. See abstract and the figure, [0030], [0033], [0034]. According to Purho, the processing unit B (e.g., the clock controller) enables only the reference clock to be clocked by the clock of the reference clock at times, and wherein the processing unit (clock controller) enables both the reference clock and the first clock to be clocked by the clock of the reference device at other times. See paragraphs [0010], [0011], [0013], [0014]. Purho also discloses that the processing unit (clock controller) comprises a phase controller for controlling the phase of a clock signal. See paragraphs [0018] and [0019]. Thus, it would have been obvious to one skilled in the art at the time of the invention to be motivated to modify the AAPA navigation system by incorporating the features from the clock synchronization system of Purho because such modification, as suggested by Purho, would provide a more accurate synchronization.

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3. Claims 3-4 and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art (AAPA) in view of Perho [US 2004/0093435], and further in view of Akopian [6,651,031].

The AAPA and Purho are silent about the clocks having respective switches, wherein the clock controller controls the switches to enable the clocks. However, clocks with particular switches that can be used to control or enable the clocks are well known in the art. In particular, in the context of switching a plurality (at least two) clocks, Akopian discloses a method for providing time using a multiple-clock model and a clock system using such a model. Akopian discloses a clock controller comprises a phase controller that controls the phase a clock signal. Each of the clocks, according to Akopian, includes a switch. That is, the first clock includes a first switch and the second clock includes a second switch, wherein the clock controller controls the first and second switches so as to enable only the first clock at times, and so as to enable both the first and second clocks at other times. See figure 3 and columns 2 and 3. Furthermore, the first switch comprises first and second terminals, wherein the first terminal is coupled to the first clock and the second terminal is coupled to the second switch, wherein the second switch comprises a third terminal, wherein the third terminal is coupled to the second clock, and wherein the clock controller controls the first and second switches. See figure 3. Thus, it would have been obvious to one skilled in the art at the time of the invention to be motivated to modify the combination of the AAPA and Purho by incorporating the clock features from the multi-clock system of Akopian because such modification would ensure that the proper clock is selected, thereby improving the reliability and efficiency of the system.

***Allowable Subject Matter***

4. Claims 6, 7, 9-11, 15-19, 32-33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art do not particularly disclose that the clock controller controls the first and second switches so as to enable only the navigation computer to be clocked by the clock of the navigation computer at times, so as to enable both the inertial measurement unit and the navigation computer to be clocked by the clock of the navigation computer at other times, and to enable all of the inertial measurement unit, the navigation computer, and the GPS receiver to be clocked by the clock of the GPS receiver at still other times. The prior art also fail to particularly disclose that the first switch comprises first and second terminals and a first output, wherein the second switch comprises third and fourth terminals and a second output, wherein the first terminal is coupled to the clock of the inertial measurement unit, wherein the second terminal is coupled to the second output, wherein the third terminal is coupled to the clock of the navigation computer, wherein the fourth terminal is coupled to the clock controller, wherein the clock of the GPS receiver is coupled to the clock controller, and wherein the clock controller controls the first and second switches.

***Response to Arguments***

5. Applicant's arguments with respect to claims 1-33 have been considered but are moot in view of the new ground(s) of rejection.

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Applicant's arguments with respect to the rejection(s) of the claim have been fully considered. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection.

In light of the above, this office action is made non-final.

### *Conclusion*

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

5,717,402	Chu	Feb. 1998
6,452,377	Clark	Sep. 2002
6,516,021	Abbott et al	Feb. 2003
6,573,799	Akopian	Jun. 2003
6,633,621	Bishop et al	Oct. 2003
US 2005/0015198	Kee et al	Jan. 2005

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacques H. Louis-Jacques whose telephone number is 571-272-6962. The examiner can normally be reached on M-Th 5:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Black can be reached on 571-272-6956. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jacques H Louis-Jacques  
Primary Examiner  
Art Unit 3661

/jlj

  
JACQUES H. LOUIS-JACQUES  
PRIMARY EXAMINER